10/808192

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Patent 7,357,293

PATENT

IN UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.:	7,357,293	Docket No:	884.C25US1
Issue Date:	April 15, 2008	Patentee:	Daewoong Suh
Customer No.:	21186	Confirmation No.:	4645
Title	SOLDERING AN ELECTRONICS PACKAGE TO A MOTHERBOARD		

REQUEST FOR CERTIFICATE OF CORRECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
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It is requested that a Certificate of Correction be issued correcting printing errors appearing in the above-identified United States patent. A copy of the text of the Certificate in the suggested form are enclosed.

Pursuant to 1.20(a), please charge Deposit Account No. 19-0743 in the amound of $100.00.

Issuance of the Certificate of Correction would neither expand nor contract the scope of the claims as properly allowed, and re-examination is not required.

The Examiner is authorized to charge any additional fees or credit overpayment to Deposit Account No.19-0743.

Respectfully Submitted,

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Date: May 13, 2008

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Richard Beck
Name

Richard Beck
Signature

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Daewoong Suh

Patent No.: 7,357,293

Issue Date: April 15, 2008

Examiner: Johnson, Jonathan

Group Art Unit: 1793

Docket No: 884.C25US1

Title: SOLDERING AN ELECTRONICS PACKAGE TO A MOTHERBOARD

Commissioner for Patents
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SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
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Richard Beck
Name

Richard Beck
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 7,357,293

DATED : April 15, 2008

INVENTOR(S) : Suh

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 6, line 48, in Claim 13, delete "first second" and insert - - first and second - -, therefor.

MAILING ADDRESS OF SENDER:

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Atty Docket No: 884.C25US1

PATENT NO. _____7,357,293_____

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SCHWEGMAN, LUNDBERG & WOESSNER

Issued Patent Proofing Form
Note: **P** = USPTO Error S = SLWip Error
File#: **884.C25US1**
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US Serial No.: **10/808,192** US Patent No.: **US 7,357,293 B2** Issue Date: **Apr. 15, 2008**

Title: **SOLDERING AN ELECTRONICS PACKAGE TO A MOTHERBOARD**

PR Instructions: **Face Page, Claims and Abstract**

S. No.	P/S	Original		Issued Patent		Description of Error
		Page	Line	Column	Line	
1	S	Page 4 Claims (04/30/2007)	Claim 13 Line 2	6	48	In Claim 13, delete "first second" and insert - - first and second - -, therefor.

game controller, microphone, voice-recognition device, or any other device that inputs information into the electronic system **70**.

In some embodiments, electronic system **70** further includes a voltage source **77** that is electrically coupled to electronic assembly **50**. Voltage source **77** may be used to supply power to a die (e.g., a processor) that is within electronic assembly **50**.

The methods and electronic assemblies described herein may be implemented in a number of different embodiments, including an electronic package, an electronic system, a computer system, and one or more methods of fabricating an electronic assembly. The elements, materials, geometries, dimensions, and sequence of operations can all be varied to suit particular packaging requirements.

FIGS. **1-5** are merely representational and are not drawn to scale. Certain proportions thereof may be exaggerated while others may be minimized.

The method described above may provide a solution for bonding an electronic package to a motherboard. The method may reduce the stress within the bond that connects the electronic package and motherboard. The method may also allows an electronic assembly that includes the electronic package and motherboard to function at higher operating temperature than the temperature that is required to bond the electronic package to the motherboard. Many other embodiments will be apparent to those of skill in the art from the above description.

What is claimed is:

1. A method comprising:

engaging a first contact on a motherboard with a second contact on an electronic package that includes a die bonded to a substrate, a portion of one of the first and second contacts being covered with an interlayer that has a lower melting temperature than the first and second contacts; and

bonding the first contact to the second contact by melting the interlayer to diffuse the interlayer into the first and second contacts, the bonded first and second contacts having a higher melting temperature than the interlayer before melting.

2. The method of claim **1** wherein bonding the first contact to the second contact includes exposing the interlayer and the first and second contacts to an environment having a temperature greater than the melting temperature of the interlayer but below the melting temperature of the first and second contacts.

3. The method of claim **2** wherein exposing the interlayer and the first and second contacts to an environment having a temperature greater than the melting temperature of the interlayer but below the melting temperature of the first and second contacts includes maintaining the interlayer and the first and second contacts within the environment until a portion of the interlayer diffuses into the first and second contacts.

4. The method of claim **3** wherein maintaining the interlayer and the first and second contacts within the environment until a portion of the interlayer diffuses into the first and second contacts includes maintaining the interlayer and the first and second contacts within the environment until a majority of the interlayer diffuses into the first and second contacts.

5. The method of claim **4** wherein maintaining the interlayer and the first and second contacts within the environment until a majority of the interlayer diffuses into the first and second contacts includes maintaining the interlayer and the first and second contacts within the environment until the interlayer is substantially diffused into the first and second contacts.

6. The method of claim **2** wherein exposing the interlayer and the first and second contacts to an environment includes exposing the interlayer and the first and second contacts to the environment for a period of time.

7. The method of claim **6** wherein exposing the interlayer and the first and second contacts to the environment for a period of time includes exposing the interlayer and the first and second contacts to the environment until the interlayer melts and then solidifies within the first and second contacts.

8. The method of claim **1** wherein engaging a first contact on a motherboard with a second contact on an electronic package includes pressing the first contact against the second contact.

9. The method of claim **1** wherein bonding the first contact to the second contact includes exposing the interlayer and the first and second contacts to an environment having a temperature less than 125 degrees Centigrade.

10. The method of claim **1** further comprising covering the portion of one of the first and second contacts with the interlayer.

11. The method of claim **10** wherein covering the portion of one of the first and second contacts with the interlayer includes covering a portion of both of the first and second contacts with the interlayer.

12. The method of claim **10** wherein covering the portion of one of the first and second contacts with the interlayer includes covering all exposed portions of one of the first and second contacts with the interlayer.

13. The method of claim **10** wherein covering the portion of one of the first second contacts includes electroplating the interlayer onto the portion of one of the first and second contacts.

* * * * *